remains to determine the depth of the lesion, below the surface, in the examination subject. The Examiner has also acknowledged that the Nachaliel et al reference does not disclose the use of orthogonal lead fields for this purpose, as set forth in claim 1 of the present application, but instead Nachaliel et al disclose the use of the aforementioned impedance maps, all of which, as noted above, are generated solely by detection of signals at the *surface* of the examination subject.

The Examiner has proposed modifying the Nachaliel et al reference in accordance with the teachings of the Gencer et al article. The Examiner stated the Gencer et al article discloses a method including applying a sequence of electrical excitation signals having different frequencies to a tissue section, and measuring electrical response signals at a number of measuring locations at a surface of the tissue section. This is a true statement regarding the teachings of the Nachaliel et al reference, but it is not accurate to describe the teachings of the Gencer et al article. The Gencer et al article makes use of bimodal data in the form of MEG or EEG data. Such MEG and EEG data do, in fact, arise from dipoles in the interior of the tissue in question, in this case brain tissue. These signals, however, are not the result of a response to an applied signal, but are spontaneously occurring signals that arise due to natural (or pathological) brain activity.

Moreover, the Examiner in the Office Action stated Nachaliel et al suggest using a bimodal lead field matrix for localization of a lesion. This would be a true statement regarding the Gencer et al article, but it is not an accurate statement regarding the disclosure of Nachaliel et al.

The Examiner therefore appears to have confusingly mixed the respective disclosures of these two references, and Applicant respectfully submits this has

contributed to the Examiner's erroneous conclusion that it would have been obvious to modify the Nachaliel et al reference in accordance with the teachings of the Gencer et al article. Applicant respectfully submits there are several reasons as to why a person of ordinary skill in the relevant technology would not consider the subject matter of claim 1 to be obvious in view of the teachings of those two references.

First, as the Examiner has acknowledged, the Nachaliel et al reference provides a solution to the problem of locating the depth of a lesion below the surface of the examination subject, and this solution is *not* to make use of orthogonal lead fields, but instead is to make use of impedance maps. According to the Nachaliel et al reference, this is a suitable solution to the problem of localizing the depth of the lesion, and therefore a person of ordinary skill reading the Nachaliel et al reference would have no reason to even consider modifying the Nachaliel et al reference for that purpose. Since identification of the depth of the lesion is *already* disclosed in the Nachaliel et al reference, by means of the use of impedance maps, locating the depth of the lesion by the use of lead fields, as disclosed in the Gencer et al reference, would only provide redundant information, namely information (the depth of the lesion) that is *already* provided by the Nachaliel et al disclosure. There is thus no reason why a person of ordinary skill in the relevant technology would even seek to modify the Nachaliel et al reference for that purpose.

Moreover, even if a person in the relevant technology would undertake to modify the Nachaliel et al reference for that purpose (for reasons unknown to the present Applicant), there is no reason why such a person of ordinary skill, without having had the benefit of first reading Applicant's disclosure, would consult a

reference such as Gencer et al making use of lead fields originating from spontaneously occurring dipole sources in brain tissue. As noted above, in the Nachaliel et al reference, the impedance maps are generated by emitting a signal at the surface of the subject, and detecting the response signal that arises as a result thereof. In the Gencer et al reference no original signal is emitted and therefore no response signal is received, but instead spontaneously arising electrical signals, originating from dipoles in the brain tissue, are detected, without any previously-emitted signals being generated. There is no teaching in either of the Nachaliel et al or Gencer et al references as to why or how a person of ordinary skill in the relevant technology would have the any reason to mix these two different types of signal acquisition techniques. Applicant submits that the only place that the Examiner has been able to be "guided" in that direction is Applicant's specification. Applicant submits that if a person of ordinary skill in the relevant technology, reading only the Nachaliel et al and Gencer et al references, had the insight to use the depth identification depth technique disclosed in the Gencer et al reference as a substitute for the already-satisfactory depth detection technique (impedance maps) disclosed in Nachaliel et al, this would be an insight supporting patentability, rather than a reason for precluding patentability.

Moreover, claim 1 explicitly requires the use of *orthogonal* lead fields, and Applicant submits that the Gencer et al reference, although making use of lead fields in the manner described above, does not make use of orthogonal lead fields. The Gencer et article continuously and consistently refers to bimodal data, but the term "bimodal data" used in the Gencer et al reference merely means that the data are a

combination of magnetic data and electrical data, as explained in the abstract in the Gencer et al article.

Equally as importantly, despite the general disclosure in the Gencer et al reference to use lead fields for identifying the depth of a lesion in brain tissue, the mathematical technique disclosed in the Gencer et al reference has no points of intersection or commonality with the technique disclosed in the Nachaliel et al reference. In the Gencer et al article, as in the case of most EEG and MEG-based systems, signals from spontaneously-occurring brain activity are detected at the surface of the head of a patient, and a reverse calculation is made (singular value decomposition SVD)), so that the originating point of the detected signals is calculated. As noted above, the Nachaliel et al reference makes exclusive use of impedance maps for determining the depth position. There is no reason why a person of ordinary skill in the relevant technology, being taught by Nachaliel et al to exclusively use impedance maps, would make a complete shift in detection technique and computational technique to instead utilize the singular value decomposition approach disclosed in the Gencer et al reference for spontaneously-arising signals.

Applicant therefore respectfully submits that the subject matter of claim 1 would not have been obvious to a person of ordinary skill in the relevant technology based on the teachings of Nachaliel et al and Gencer et al. Applicant respectfully submits that the only reason why the Examiner has even considered modifying Nachaliel et al in accordance with the teachings of Gencer et al is that the Examiner has been guided in that direction by Applicant's disclosure. Applicant submits that there is no teaching, suggestion, guidance or inducement in either of those

references that would objectively cause a person of ordinary skill in the relevant technology, who had not had the benefit of reading Applicant's disclosure, to arrive at the same conclusion as the Examiner.

Early reconsideration of the application is therefore respectfully requested.

Submitted by,

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